

Basics of Digital Assets (Cryptocurrency)



Presented By:

Patti Wubbels

Crypto Advisory Services

Strategic Resource Management

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SRM DIGITAL ASSETS (CRYPTO)/BLOCKCHAIN TEAM



SRM's crypto/blockchain team's experience: cryptographic foundations, industry applications, the intersection of traditional finance and crypto, regulatory environment, and various crypto/digital assets, including coins, altcoins, stablecoins, NFTs, and Central Bank Digital Currencies.



Patti Wubbels, SVP
402-440-5372
pwubbels@srmcorp.com



Larry Pruss, SVP
814-934-8954
lpruss@srmcorp.com



Keith Ash, SVP
302-547-9544
kash@srmcorp.com

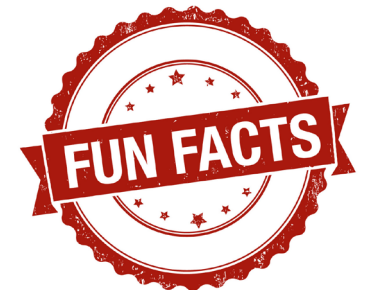


Jesse McGannon, VP
630-302-1104
jmcgannon@srmcorp.com

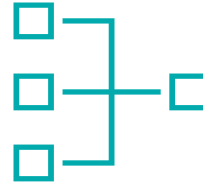
GROWING POPULARITY



- It's estimated that 20-30% of Americans own some form of cryptocurrency/Digital Assets. (Multiple Sources)
- 61% of voters believe the US government should support the crypto industry so that our financial system remains a world leader (The Block)
- 50% of financial advisor clients are asking about crypto (FDIC study)
- 27% of Americans want to make crypto legal tender (FDIC study)
- More than 40% of crypto owners surveyed purchased their first digital asset in 2021 (Paxos study)
- Crypto owners want their primary banks to join the crypto ecosystem. More than 60% of crypto owners surveyed would prefer to get crypto from their primary banking app if it was offered.
- 44% of Surveyed Bank Execs Plan to Offer Crypto Services in 2022 (American Banker Survey)
- For the first time the number of US citizens holding crypto (24%) has surpassed the number of citizens with a savings account (23%). (Morning Consult, a global data intelligence company)



REVIEW: WHAT IS A **BLOCKCHAIN?**



It's the foundation of a decentralized cryptocurrency.

It is a distributed ledger, hosted on multiple computers (or "Nodes"), that tracks transactions between users.

Nodes also continuously cross-reference each others' local copies to validate the blockchain.

WHAT IS CRYPTOCURRENCY?



In broad strokes, a cryptocurrency is a digital asset used as a medium of exchange or store of value.



Ownership and transaction records are recorded onto a digital ledger called a “blockchain”.



Cryptocurrencies are becoming popular with retail and institutional investors, sovereign wealth funds, and even countries.

WHAT KINDS OF **DIGITAL ASSETS** ARE THERE?



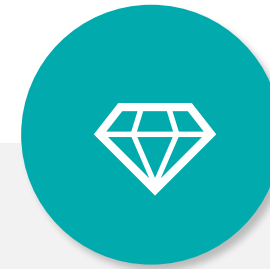
COINS



DIGITAL TOKENS



STABLE COINS



**NON-FUNGIBLE
TOKENS (NFTS)**



**CENTRAL BANK
DIGITAL
CURRENCIES
(CBDC)**

DIFFERENT USE CASES



Store of value

- Decentralized
- Censorship Resistant
- Hard Capped
- Immutable
- Network Effects



Speculative

- YOY Returns on the top 4
- BTC -31% / avg 82%
 - ETH 46% / avg 180%
 - BNB 43% / avg 500%+
 - SOL 459% / avg 10,000+



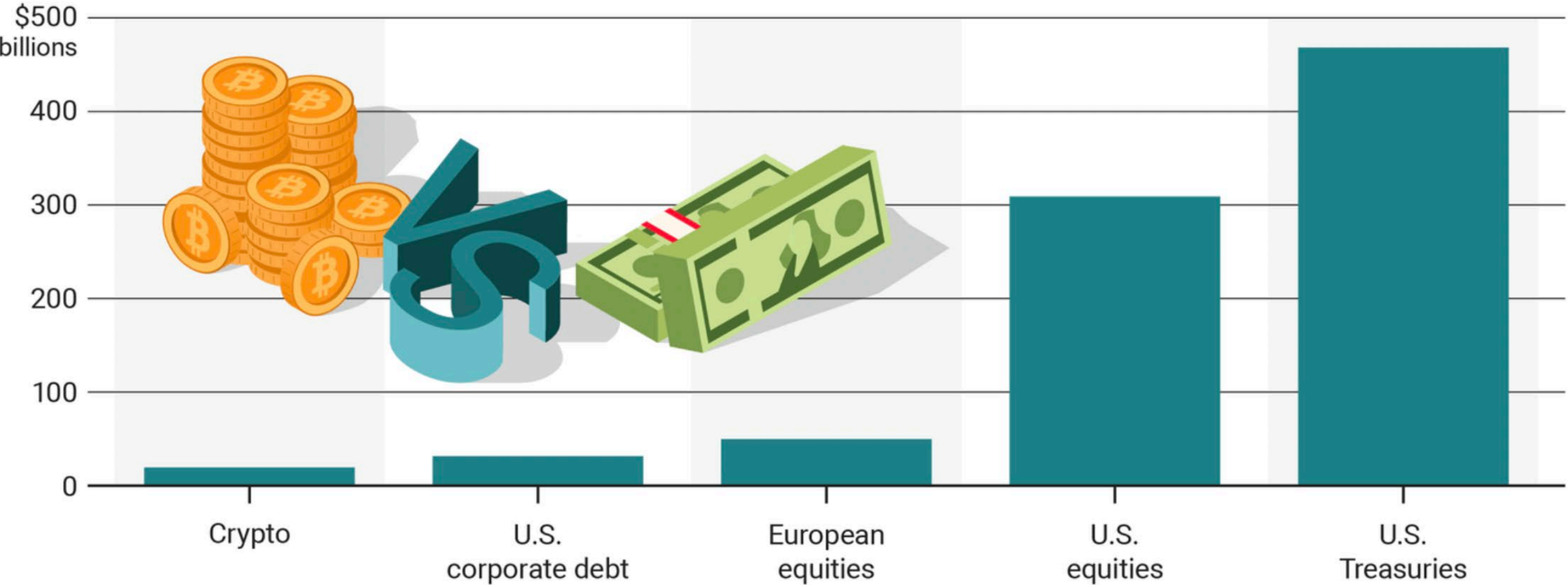
Transactional

- International Remittances
- Real-time Settlement
- Payments
- Decentralized Finance
 - Lending
 - Borrowing
 - Trading
 - Insurance
 - Synthetics

Data as of 3/12

Crypto volume vs the rest

Crypto daily trade volume compared with other segments*

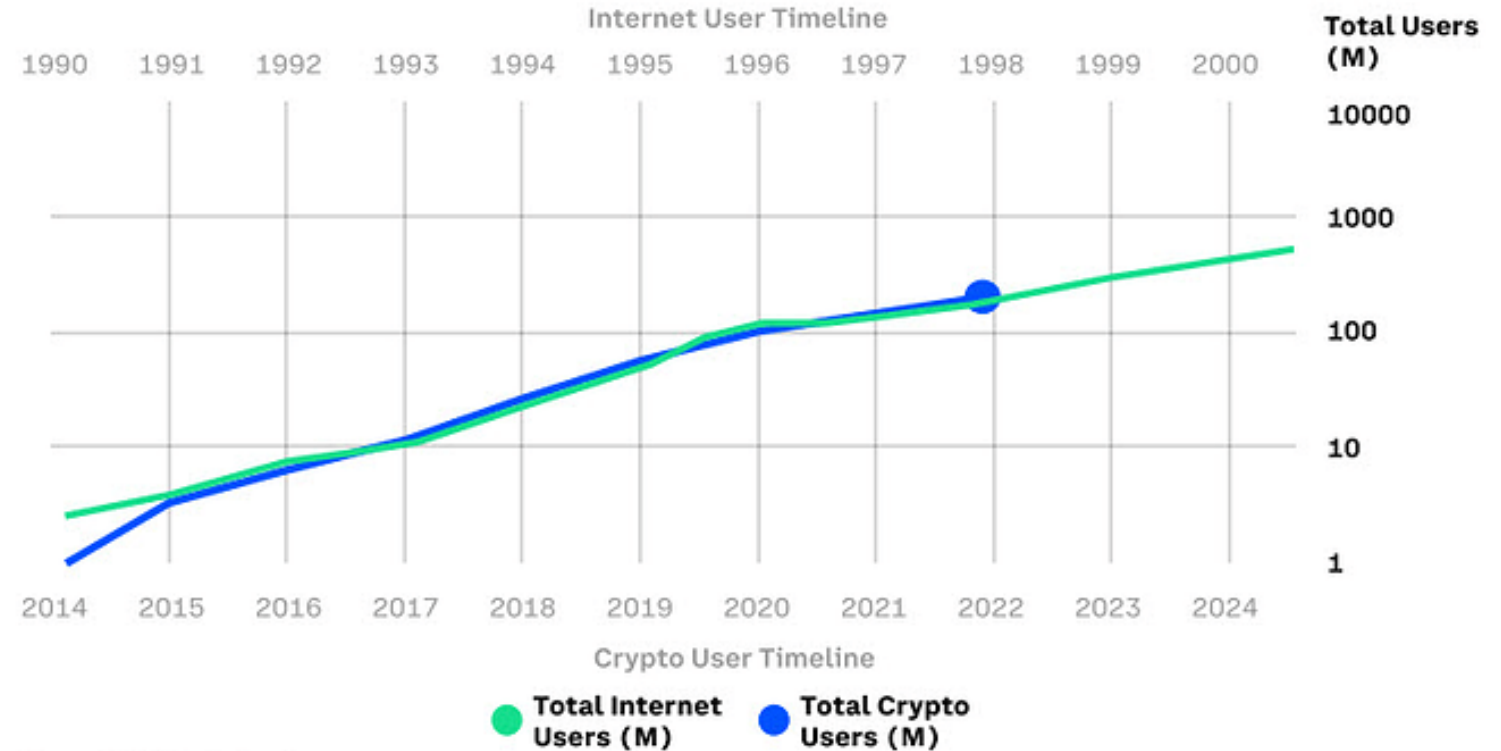


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*30 day average
Source: Sanford C. Bernstein note citing CoinMarketCap, CBOE, Coindance, SIFMA

CRYPTOCURRENCY ADOPTION

Internet vs. Crypto Adoption

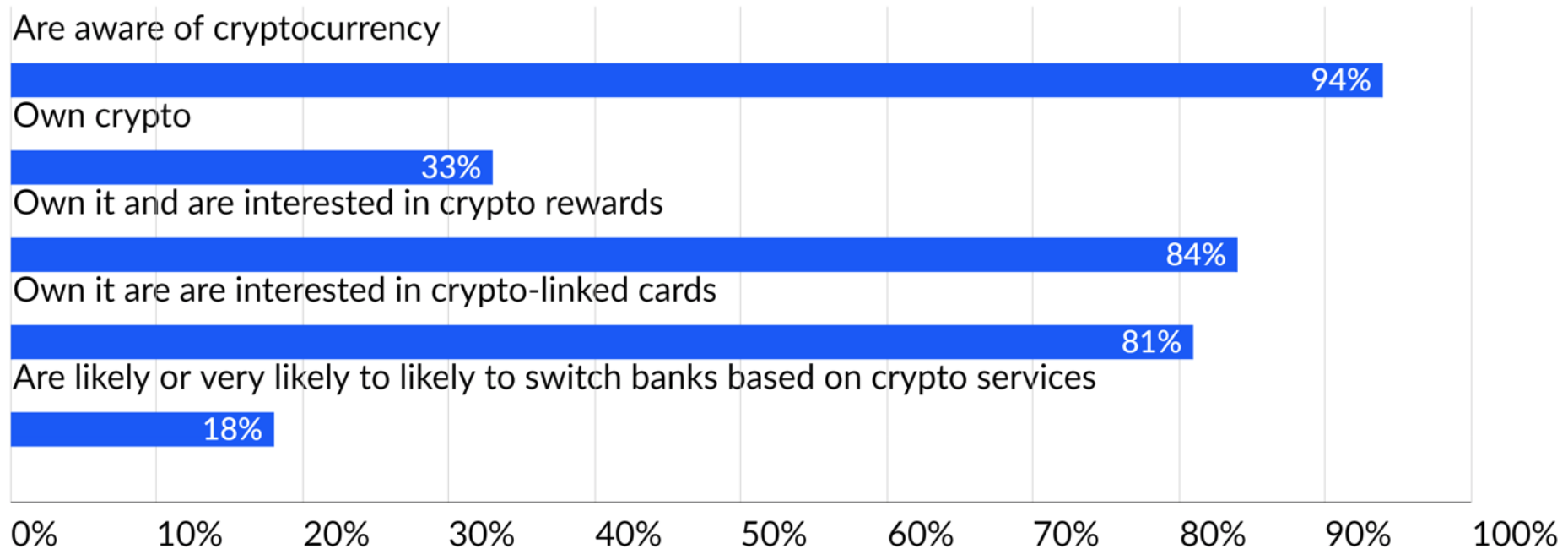


Source: World Bank, Crypto.com

STRONG AWARENESS & ADOPTION

Receptive audience

Most consumers are familiar with crypto and owners of it are open to broader applications



Source: Visa (survey of 6,000 household decision-makers)

ETFs, Countries, and Companies Hold BTC on Balance Sheets



Category	# of BTC	Value Today	% of 21m
ETFs ↗	809,848	\$35,190,437,065	3.856%
Countries ↗	271,417	\$11,793,920,411	1.292%
Public Companies ↗	247,940	\$10,773,779,776	1.181%
Private Companies ↗	174,068	\$7,563,800,860	0.829%
Totals:	1,512,832	\$65,737,306,660	7.204%



El Salvador President Nayib Bukele Predicts Two More Countries Will Make Bitcoin Legal Tender In 2022

Last summer, Bukele, with the help of Strike CEO Jack Mallers, announced that he was sending a bill to congress to make bitcoin legal tender in El Salvador.

Source: [bitcointreasuries.net](https://www.bitcointreasuries.net)



All the Countries Considering Bitcoin Adoption - TheStreet

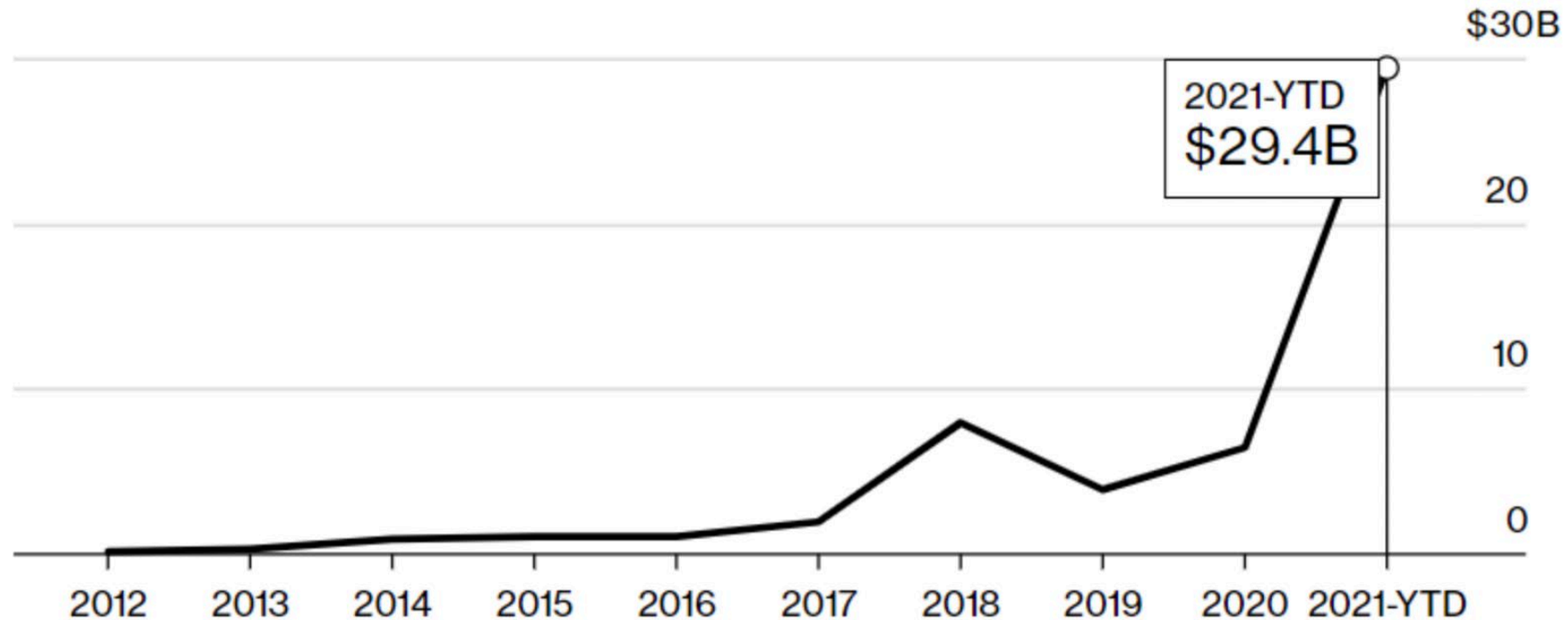


Countries Considering Bitcoin Adoption: Panama; Paraguay; Brazil; Mexico; Argentina. Watch the video or read ...

TheStreet · Zach Faulds · Jun 23, 2021

Big Token

Venture capital firms pour \$30 billion into crypto industry

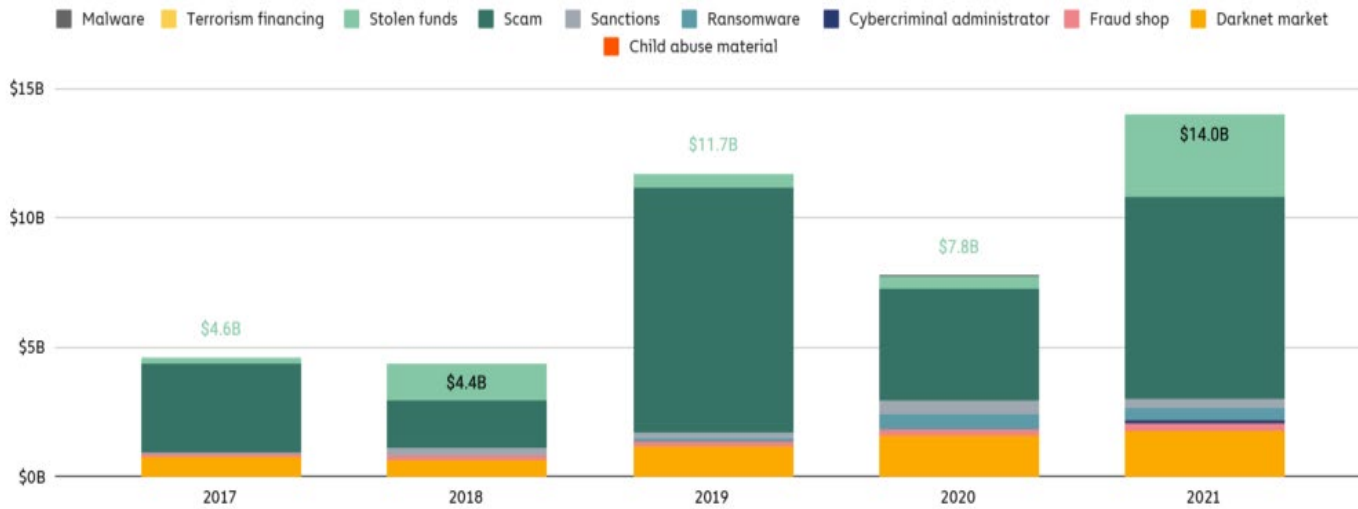


Source: PitchBook
*Data through Dec. 15

Crypto Crime trends for 2022

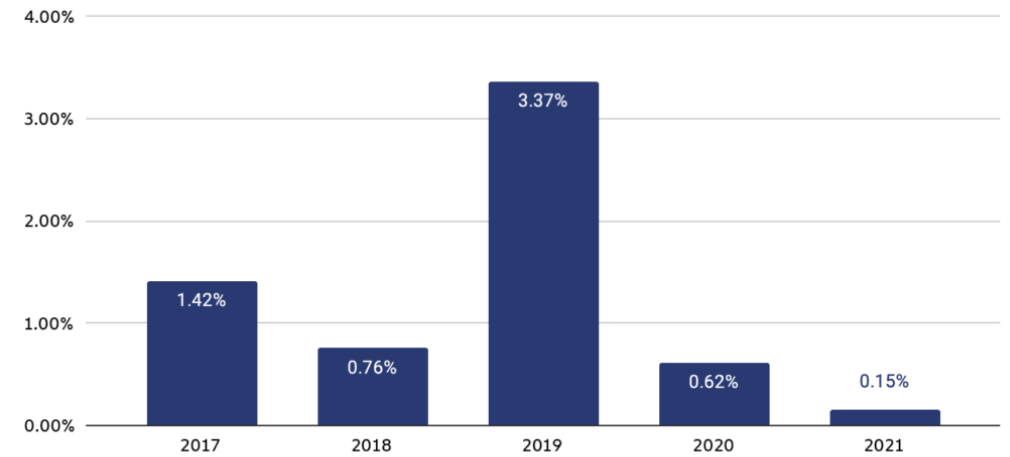
Illicit Transaction Activity Reaches All-Time High in Value, All-Time Low in Share of All Cryptocurrency Activity

Total cryptocurrency value received by illicit addresses, 2017 - 2021



© Chainalysis

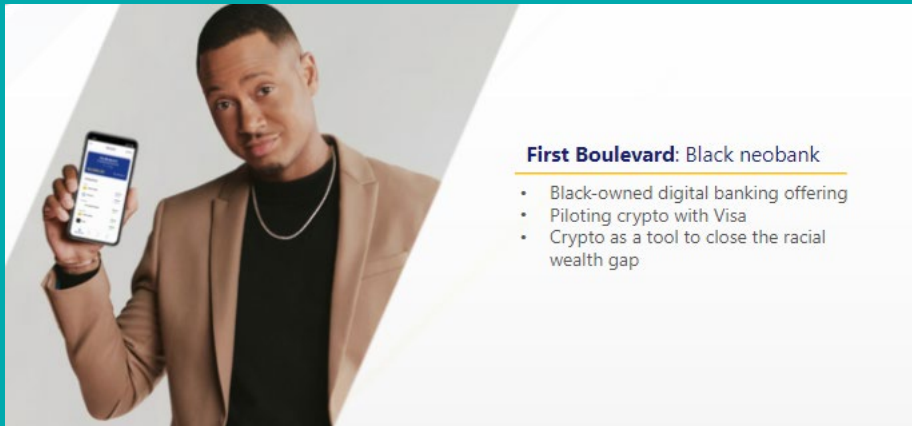
Illicit share of all cryptocurrency transaction volume, 2017 - 2021



© Chainalysis



DIVERSITY



First Boulevard: Black neobank

- Black-owned digital banking offering
- Piloting crypto with Visa
- Crypto as a tool to close the racial wealth gap

Crypto ownership among different ethnicities, income levels and generations reveals persistent, **enthusiastic interest among minority and younger populations.**

CRYPTO OWNERSHIP

- 17% White Americans
- 30% African Americans
- 27% Latino Americans
- 10% Fully Banked
- 37% Underbanked

A new generation of digital asset enthusiasts are emerging with 44% of cryptocurrency traders being investors of color, compared with only 35% stock investors.

Cryptocurrency is most popular with young adults: **31% of people ages 18 to 29 have used it**, compared to 21% of people ages 30 to 49, 8% of people ages 50 to 64 and 3% of people age 65 or over.

FINANCIAL INSTITUTION **ADOPTION**



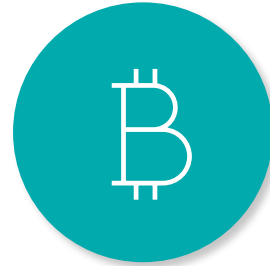
Custodial Services of crypto keys is something most banks and credit unions can easily provide



BNY MELLON



Five Star Bank
Banking | Investment | Insurance



Trading

Integrations into existing online banking or mobile wallets can allow buying, selling, and use of crypto



FLUSHING
Bank



Vast.bank

VISIONS
FEDERAL CREDIT UNION



Rewards Programs offer crypto rewards via debit & credit cards or even paying interest in crypto

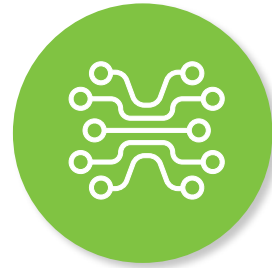


QUONTIC

FINANCIAL INSTITUTION **ADOPTION**



Lending to the crypto industry or against client crypto assets via low risk, over collateralized, loans



Issuing/Backing Stablecoins could offer significant yields to financial by holding the underlying assets



Blockchain/Crypto Technology can secure sensitive data, speed up settlement periods, and provide P2P solutions



J.P.Morgan



Yield it's possible to deliver yield opportunities to clients via providing liquidity to the market and staking assets



Leading vendors offering crypto solutions





DECENTRALIZED FINANCE (DEFI) – “OPEN FINANCE”



- Extremely efficient financial activities without a 3rd party intermediary – **“peer-to-peer” financing using crypto.**
- Open, transparent, permissionless, trustless, decentralized, and has composability.
- DeFi applications (DAPPS) are a growing list and include borrow/lending, trading, payments, and insurance.
- We’ve seen tremendous growth in the past year alone
- DeFi grew from \$30B to \$100 in one year.

- 4th OCC Interpretive Letter 1179, issued under Acting Comptroller of the Currency Michael J. Hsu, elaborated on the process that would be required to engage in cryptocurrencies in a “safe and sound” manner.
- As long as a bank shows that it has sufficient controls in place, and first obtains written notice of “non objection” by its supervisory office, then a bank is said to be engaging in a “safe and sound manner.”



Additional **Potential** Regulatory Changes

- The Biden Administration released an Executive Order directive to ask federal agencies to determine the risks and opportunities posed by digital assets.
- SEC recently proposed rule classifying DEFI “communication protocols” like DEX’s as exchanges. They are currently requesting public comments. <https://www.sec.gov/rules/proposed.shtml>
- The Federal Reserve recently kicked off debate about creating an official digital version of the US Dollar. This could have significant impacts to consumers and existing financial service companies. The paper made no policy recommendations and offered no clear signal on where the Fed stands on whether to launch a central bank digital currency (CBDC). The Federal Reserve is soliciting public comment. <https://www.federalreserve.gov/apps/forms/cbdc>

**CHANGE
IS
COMING...**

REGULATION & STANDARDS

Security and Exchange Commission (SEC) believes some digital assets “may be securities”

Commodity Futures Trading Commission (CFTC) considers crypto to be a commodity

Internal Revenue Service (IRS) classifies crypto as property

Office of the Comptroller of the Currency (OCC) the OCC in 2020 and 2021 provided regulatory guidance via 3 interpretative letters

National Credit Union Administration (NCUA) announced guidance for credit unions in 4th Qtr 2021

Department of Justice (DOJ) recently announced the creation of a National Cryptocurrency Enforcement Team (NCET)

Financial Crimes Enforcement Network (FINCEN) recently appointed FinCEN's first-ever Chief Digital Currency Advisor and is working on rules requiring crypto exchanges to file reports when a client moves \$3,000 of virtual currency domestically or \$250 internationally

Financial Action Task Force (FATF) recently updated its guidance on the risk-based approach to virtual assets (VAS) and virtual asset service providers (VASPs)

Financial Accounting Standards Board (FASB) has been considering changes to accounting rules and recently requested public comment on the subject. Current GAAP accounting prohibits businesses from showing the true value of crypto assets.

FBI recently announced new cryptocurrency unit.

The BIG WHY

KEY TAKEAWAYS



- **Defend your source of funding: Deposits**
- **Drive interest and non-interest income**
- **Acquire customers and market share**
- **Increase client engagement**
- **Avoid being disintermediated**
- **New disruptive payment rails are emerging**

GOING TO MARKET



Needs Assessment

- Outflow analysis
- Employee/Customer surveys and focus groups
- Executive, Board, Employee & Client Education
- Competitive Analysis
- Use Cases for financial institutions to consider
- SRM Crypto University



Crypto Strategy

- Infrastructure readiness
- Business Plan, Gap Analysis
- Strategy Development
- Design Thinking Sessions
- Product Decisions
- Compliance & Risk Considerations



Partner Selection

- Vendor Selection and Implementation
- RFP
- Demos
- Compliance
- Licensing
- Integration Considerations



Roll-Out

- Wait list
- Qualifying/Liability Reduction
- Marketing and Roll-out planning
- Implementation & Integration
- Pricing Decisions
- Disclosures
- Regulatory Preparation
- Tracking and Compliance

QUESTIONS & DISCUSSION

Presented By:

Larry Pruss and Patti Wubbels

PAYMENT RAIL ALTERNATIVES EMERGE



Verifone®



flexa



CoinPayments



crypto.com

bitpay

coinbase | Commerce



PayPal Coin

Settlement is occurring directly on the blockchain.
BTC alone had more settlement volume (\$13.1T) than Visa in 2022.

THE CRYPTO WALLET



Public Key — This cryptographic key is usually designed to allow someone to send digital coins to an address without identifying the user. It's kind of like an account username.

Private Key — This is your own information that you use to identify yourself as the owner of the wallet. It's kind of like a PIN or a password. You can use your private key to get into your hot wallet and see what's happening.



CUSTODIAL WALLET

CUSTODIAL WALLETS ARE THIRD PARTIES SUCH AS EXCHANGES AND BROKERAGE SERVICES. THESE SERVICES HAVE CONTROL OVER YOUR COINS.



NONCUSTODIAL WALLET

NONCUSTODIAL WALLETS GIVE USERS 100% CONTROL BY PROVIDING OWNERS WITH THE PRIVATE KEYS

[Bitcoin.com](https://www.bitcoin.com)

HOT VS COLD Wallets



- Connected to the internet
- More accessible and can be connected to the platform you trade on
- Easier to use in transactions across the internet.
- More vulnerable to hackers.
- Often free

- Only limited and controlled internet connectivity
- Even when plugged into a computer and connected to the internet, the funds can't be stolen, as the transaction must be signed by the device itself.
- Less accessible - since you need the key for each transaction.
- Designed to be thief-proof.
- More expensive

Regulatory Changes: **Tax Reporting for Brokers**

The Infrastructure Investment and Jobs Act was effective on **November 15th 2021** includes a broad definition of "broker" to target cryptocurrency information reporting to the IRS. Requirements in the infrastructure bill will not take effect until Jan. 1, 2023, with reporting needed in 2024.

The bill imposes obligations similar to IRS Form 1099-B on various technology providers in the crypto industry, even if they do not broker digital asset transactions and lack the necessary information to comply.

Based on bill's imprecise wording, various noncustodial blockchain technology providers may represent "brokers" subject to reporting obligations. For example:

- Proof of Stake Validators and Proof of Work Miners
- Blockchain Node Operators or Delegates
- Software Developers
- Crypto Wallet Suppliers



Regulatory Changes: **Stablecoins**

- On **November 1st, 2021** the President's Working Group (PWG) on Financial Markets issued a report suggesting regulators want to see more oversight of stablecoins
- The working group consists of the U.S. Treasury, the Federal Reserve, the Securities and Exchange Commission, and the Commodity Futures Trading Commission. This was largely expected and stablecoin companies have been making contingencies for this.
- Many stablecoin issuers have already pursued banking licenses/charters or partnered with a bank
- Whether regulatory clarity comes from Congress or another agency (or agencies), it doesn't really matter. Regulation will add legitimacy and further the adoption of stablecoins

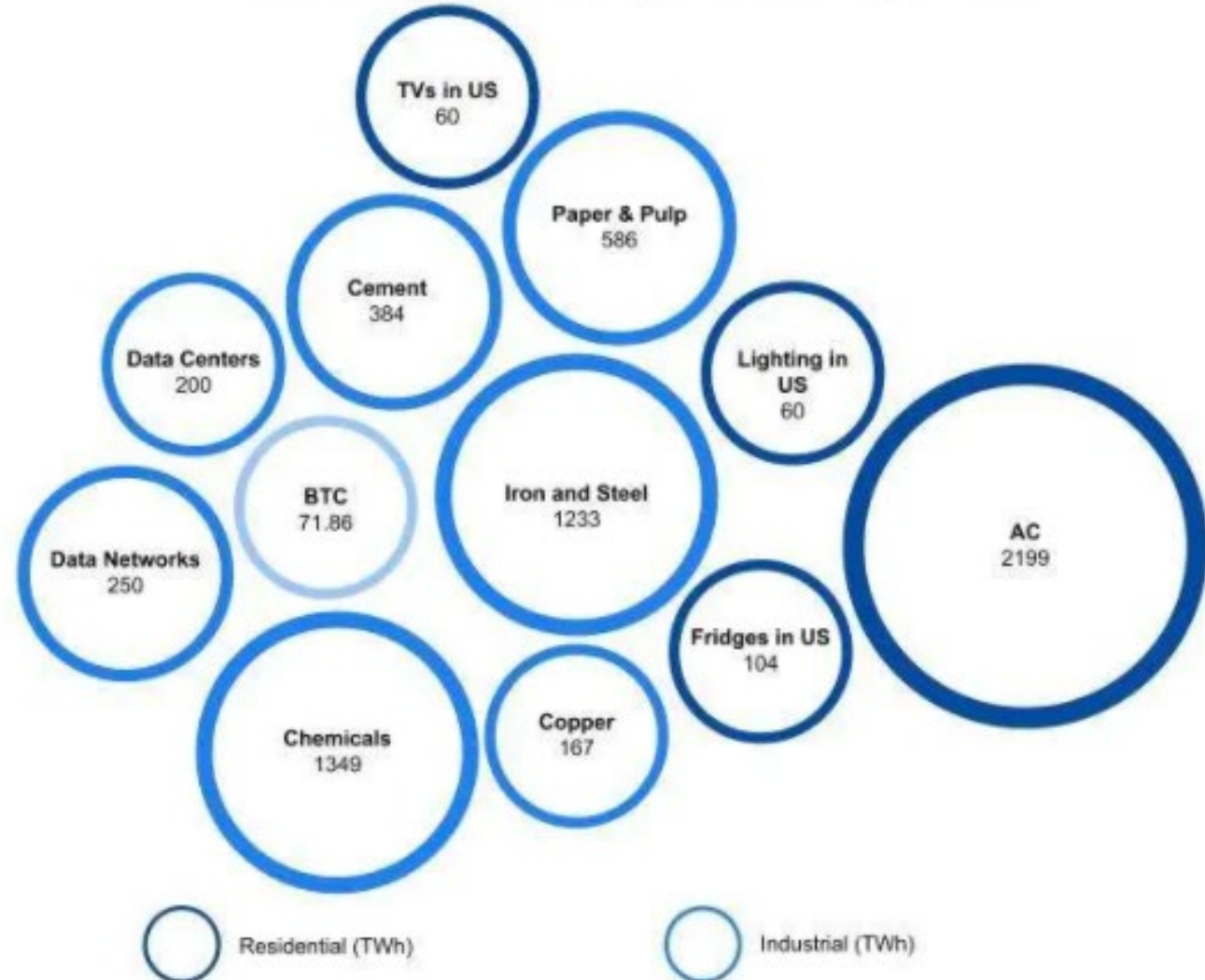


President's Working Group Recommendations

- **To address risks to stablecoin users and guard against stablecoin runs**, legislation should require stablecoin issuers to be insured depository institutions
- **To address concerns about payment system risk**, in addition to the requirements for stablecoin issuers, legislation should require custodial wallet providers to be subject to appropriate federal oversight. Congress should also provide the federal supervisor of a stablecoin issuer with the authority to require any entity that performs activities that are critical to the functioning of the stablecoin arrangement to meet appropriate risk-management standards.
- **To address additional concerns about systemic risk and concentration of economic power**, legislation should require stablecoin issuers to comply with activities restrictions that limit affiliation with commercial entities. Supervisors should have authority to implement standards to promote interoperability among stablecoins. In addition, Congress may wish to consider other standards for custodial wallet providers, such as limits on affiliation with commercial entities or on use of users' transaction data.

Bitcoin Energy Consumption

Bitcoin Energy Consumption: A Comparison



Repurposed from University of Cambridge's Bitcoin Electricity Consumption Index

Energy usage compared to current monetary alternatives

	Annual Cost	Energy Used (GJ)
Gold Mining	\$105B	457M
Gold Recycling	\$40B	25M
Paper Currency and Minting	\$23B	39M
Banking System	\$1,870B	2,340M
Governments	\$27,800B	5,861M
Bitcoin Mining	\$4.5B	183M

*One gigajoule (GJ) is equal to 277.8 kilowatt hours (kWh), 1.055 million British thermal units (Btu) or 0.17 barrels of oil.

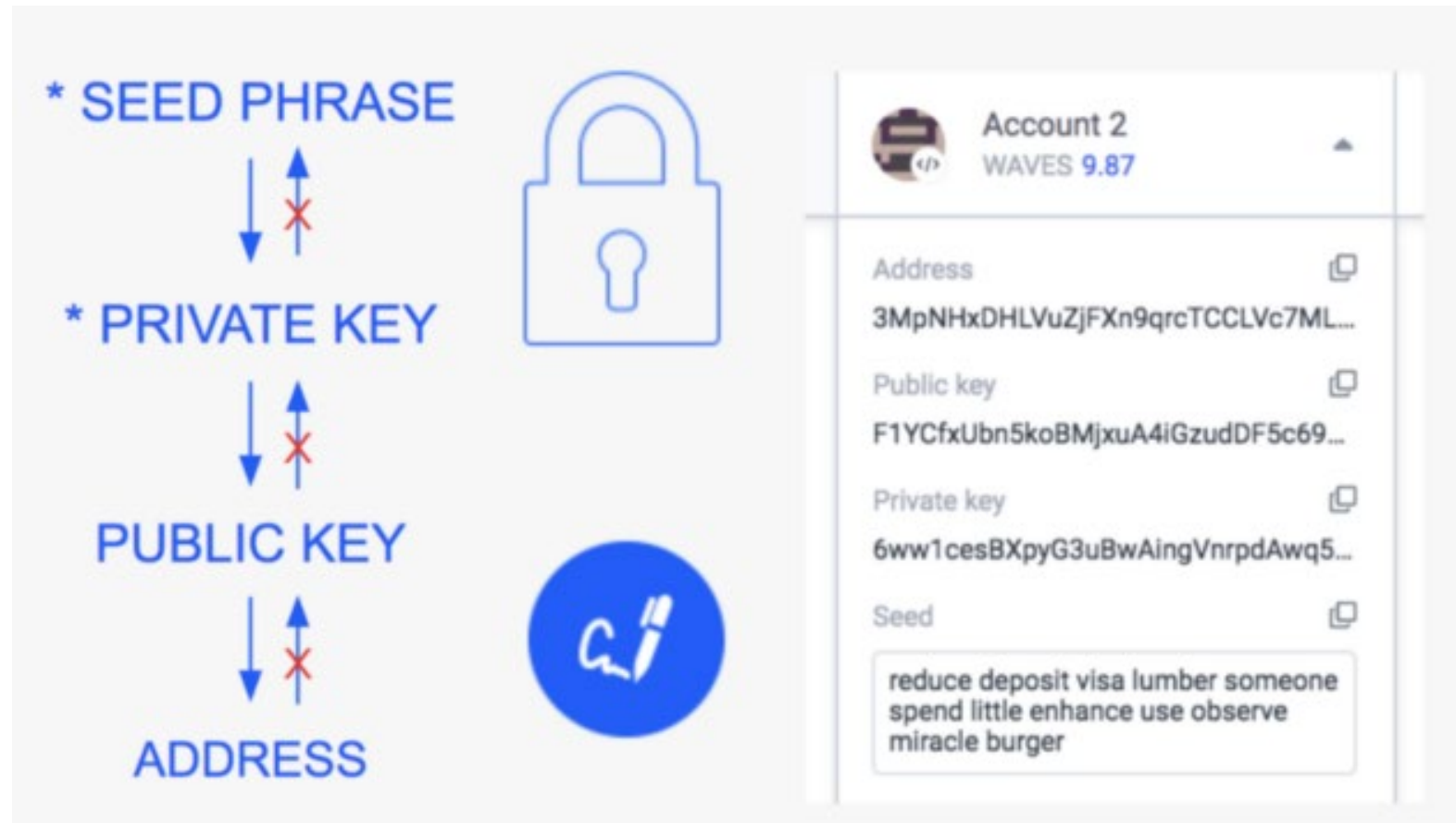
SEED PHRASE > Private and Public Keys & Wallet Address

The wallet uses the seed phrase to create the private keys.

Public keys are created using an asymmetric algorithm, which pairs the public key with an associated private key.

Public key are not the addresses, A address is like an email address that funds can be sent to.

The public key is used by the wallet to make different addresses.



MINING VS MINTING

Crypto mining is the process of earning cryptocurrencies by recording and confirming transactions on a public digital record of transactions known as a blockchain, and this is accomplished through the use of computers to solve cryptographic equations. In return for the complex mathematical problems that they solve, miners are rewarded in cryptocurrencies.



Minting, is the act of authenticating data, creating a new block, and storing that data onto the blockchain via the Proof-of-Stake method. The minting method for how blocks are formed and data is added to a block is known as Proof-of-Stake.

Coins are minted through staking rather than mining under the Proof-of-Stake process. Proof-of-Stake doesn't have miners; instead, it has validators, and it doesn't allow individuals to mine new blocks; instead, they can mint or fake them.

Proof of Work

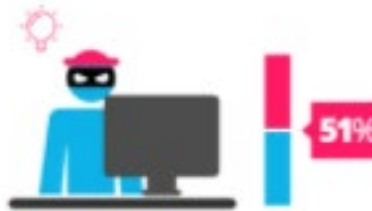
vs.

Proof of Stake



To add each block to the chain, miners must compete to solve a difficult puzzle using their computers processing power.

There is no competition as the block creator is chosen by an algorithm based on the user's stake.



In order to add a malicious block, you'd have to have a computer more powerful than 51% of the network.



In order to add a malicious block, you'd have to own 51% of all the cryptocurrency on the network.



The first miner to solve the puzzle is given a reward for their work.



There is no reward for making a block, so the block creator takes a transaction fee.

Proof of Work vs. Proof of Stake